

AYRES (S.C.)

TRAUMATIC HEMORRHAGES
IN THE REGION OF THE
MACULA LUTEA.

WITH A REPORT OF CASES.

BY
S. C. AYRES, M.D.,
CINCINNATI.

A Paper read before the Academy of Medicine
of Cincinnati, February 9, 1891.



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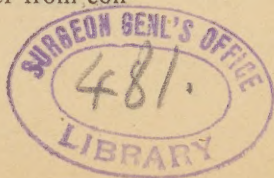
S. C. AYRES, M.D.,

CINCINNATI.

The importance of preserving central vision makes all injuries involving the macula region assume a serious aspect, until the blood has cleared up sufficiently to allow of an inspection by the ophthalmoscope.

The following cases are reported to show how rapidly and completely eyes, otherwise healthy, recover from apparently severe injuries involving the yellow spot and its immediate vicinity.

The anatomical construction of the macula lutea is such that we might reasonably expect it to suffer from con-



tusions and injuries of the eye-ball more than other portions of the retina. Stricker says "the fragile and transitory nature of the substance of the yellow spot, is explained by the circumstances that the more delicate nervous elements here greatly outnumber the elements of the connective substance, which, in other portions of the retina occupy a much more considerable space." The macula being surrounded by delicate capillary loops, seems to offer a point of less resistance than other portions of the retina. Intra-ocular hemorrhages occur quite frequently from injuries and contusions of the eye-ball. After the vitreous has cleared up, it is not always possible to tell the point at which the hemorrhage occurred. It might have been from the anterior portion of the eye ball; from the ciliary region, in which case it would be impossible to locate the lesion. If from the posterior portion of the globe, the point of hemorrhage can frequently be located if the eye is examined before

the blood is entirely absorbed. In an otherwise healthy eye, traumatic intra-ocular hemorrhages are absorbed very rapidly. Hemorrhages in the vicinity of the macula lutea are very liable to be followed by impairment of vision. Central vision may be entirely destroyed, or a condition of permanent metamorphopsia may remain.

CASE I.—*Injury of Eye by a Ball. Intra-Ocular Hemorrhage, and Hemorrhage in Macula Lutea Region; Metamorphopsia; Changes in Refraction of the Eye; Recovery.*

C., æt. eighteen, gave the following history of an accident which he received five days ago:

He was playing ball, and was struck by the ball in the left eye. There was immediate loss of vision, and the eye was considerably painful for the rest of the day. Cold applications were applied, and two days later he began to see light. The following day he could dimly see large objects in the room.

I saw him on the fifth day after the injury, on the 24th of May, 1888, and

by that time he was able to count fingers at four feet. The pupil was dilated almost ad-maximum, and fixed, and presented an elongated appearance. He was required to keep quietly at home in a darkened room, and a weak solution of eserine was used twice a day. There was a hemorrhage in the region of the macula lutea, somewhat irregular in shape, but distinctly involving that region.

May 29. V 0.3. Blood absorbing. He has now metamorphopsia in the horizontal meridian. Horizontal lines appear broken, and irregular in the centre.

The case progressed very favorably, and by June 14 vision had increased to 0.7. He now appeared slightly myopic, and with 0.75; his vision was 0.9. The pupil still remains somewhat dilated, but not so much as at first.

June 19. V 0.9. Sees better with am. 0.75; ax. 0.

July 6. V 0.9, ah 0.25, ax 90, V 1. Vertical lines wavy, horizontal correct.

July 23. V 1.

September 7 his refraction was tested under homatropine with the result of discovering that he had hyper-

opic astigmatism, in moderate degree, in both eyes.

CASE II.—*Injury of the Eye by Rubber Sling Shot. Extensive Intra-Ocular Hemorrhage, and Hemorrhage in Region of Macula Lutea with Œdema of Retina; Recovery.*

G. B., æt. fifteen, was hit, on the 6th of March, 1889, in the eye with a shot thrown from a rubber sling, which struck the eye ball just below the cornea. The blow was followed by almost instant loss of sight. This continued for two days, when it began to clear up. The vision slightly improved, so that in the course of three or four days he could see objects around the room.

I saw him first ten days after the injury. At that time vision was 0.4. There was no external evidence of an injury. The central portion of the retina, around the macula, presented a stippled appearance, as if there were minute hemorrhages collected together. In the macula region there was a little grayish spot, which seemed to be slightly prominent. The retina, for some distance around the macula, was œdematous. Four days later vision was

increased to 0.8, and on March 21 vision was 0.9. The stippled appearance around the macula gradually subsided. Later I saw him again and vision was perfectly restored, and no trace of the injury could be seen.

CASE III.—*Hemorrhage in the Region of the Macula while Stooping down to Drink out of a Stream. Œdema of the Retina; Central Scotoma; Recovery.*

October 25, 1888, E. H. N., æt. twenty-four, gave the following history of the amblyopia of his right eye:

He says that two weeks ago, while out hunting, he stooped down to drink out of a stream, and when he arose he noticed some dark clouds before that eye, and dimness of vision. This increased during the day, and by evening his sight was so imperfect that he could not count fingers, and could only see motions far downwards. There was no pain, and no inconvenience except from loss of vision. This remained nearly the same until the present time.

The ophthalmoscope showed marked alterations in the region of the macula. There is a hemorrhage, irregular in shape, and a greyish cloud, which

partly covers it, probably due to œdema of the retina.

He remained under treatment for a short time, and when he left his vision had increased to 0.1; but the scotoma still involved the inner and central portion of his field of vision. He went home under strict instructions and returned in a month, and vision had improved to 0.6. He was seen February 7, 1889, about four months after the injury, and vision in this eye was perfect. The field of vision was complete, but he says there is the thinnest possible scotoma, which can still be detected in the central portion of the field; it does not, however, interfere with his acuity of vision.

In the first case there was a well-marked mydriasis, with a fixed condition of the pupil, and later on some interesting changes in the refraction. First, he saw best with a concave lens, then with a concave cylinder, later with a convex cylinder; and when his refraction was tested, he was found to have hyperopic astigmatism.

Berlin, in speaking of the eye, says

“that it is very probable that hemorrhages, in the immediate vicinity of the lens, can influence the shape, and even under certain circumstances the position of the latter, and thus cause a disturbance of vision in conjunction with the spastic contraction of the sphincter iridis through irregular astigmatism.” In this case the concussion of the heavy ball, coming with considerable velocity, would very probably cause hemorrhage in the anterior portion of the eye. It was probably in the ciliary region, and in sufficient quantity to influence the action of the ciliary on the lens, and especially when associated with mydriasis.

In the proceedings of the Ophthalmological Society of the United Kingdom, March, 1888, Mr. Lang reported a case of retinal hemorrhage in the region of the yellow spot. It recovered with perfect vision, and, in his judgment, the hemorrhage occurred between the layers of the retina or in the choroid.

At the same meeting, Mr. Nettleship showed diagrams of two cases of large, semi-circular hemorrhages at the yellow spot. The inferior macular artery, which traversed the blood patch, was found to be obliterated in one case, and greatly altered in the other. This condition offered a very plausible explanation of the hemorrhage, and showed that it was from a retinal vessel. It seems, also, more probable that complete recovery might take place when the hemorrhage was from the retina and immediately underneath the hyaloid, than where it was from the choroid. If from the latter, it would probably cause such an amount of cicatrization in the chorio-capilaris as to influence the rods and cones, and result in a limited scotoma or in permanent metamorphopsia.

In the second case there was an œdematous condition of the retina, which extended for some distance around the macula, but it all dis-

appeared, and there was no visible trace of the injury left.

Berlin says he has observed the retina assume a grey, cloudy opacity, in a defined area, after injuries of the eye with a blunt body.

Arlt, in his work on injuries of the eye, says that experiments on rabbits proved that blows on the sclerotic caused an opacity in the immediate vicinity of the injuries, and also at a point nearly corresponding on the opposite side of the eye. He says that this œdema of the retina is due to hemorrhages between the choroid and the sclerotic.

In the third case the hemorrhage was not strictly traumatic. He had become heated while walking, and stooped down to drink. It was not apoplectic, in the general acceptation of the term, as it was not due to a disease of the coats of the blood-vessels. It was traumatic, in the sense that the retinal vessels were engorged,

and their return to the heart impeded by his constrained and unnatural position. Here, also, there was œdema of the retina, as in the previous case. There was a central scotoma, and vision was long in returning. It is probable that there was a hemorrhage, not only between the retina and the hyaloid membrane of the vitreous, but into the substance of the retina itself.

